

[002] This application claims priority from German Application Serial No. 103 05 241.0 filed February 8, 2003.

[003] FIELD OF THE INVENTION

[004] The invention concerns a six-gear or seven-gear dual-clutch transmission according to the preamble of claim 1.

[005] BACKGROUND OF THE INVENTION

[009] ————— The solution of this problem results from the features of the main claims while advantageous developments and improvements of the invention can be understood from the sub-claims.

[010] SUMMARY OF THE INVENTION

[035] BRIEF DESCRIPTION OF THE DRAWINGS

[036] The invention will now be described, by way of example, with reference to the accompanying drawings in which:

[039] DETAILED DESCRIPTION OF THE INVENTION

[041] The output sides of the clutches K1, K2 are connected with two input shafts (3, 4) disposed coaxially to each other. The first input shaft 3 is designed as a hollow shaft and the second input shaft 4 as a solid shaft, the latter being rotatably supported in the hollow shaft.

[047] For more clarity in this representation, it is now shown that the reverse idler wheel 10 is in tooth contact with a reverse fixed wheel which is fastened upon a separate reverse gear shaft. One other reverse fixed wheel upon said reverse gear shaft RG meshes with th contact toothing 20 on the differential transmission 21.

[055] If very strong thermal loads of the first clutch K1 are to be feared in a starting operation in the first gear or of the second clutch K2 in a starting operation in reverse gear RG (trailer operation on the slope), it is possible to use, in the transmission shown in Fig. 2, another coupling device 38 with which both input shafts 3, 4 can be rigidly connected. In this manner, both clutches K1, K2 have doubled torque-transfer capacity available for a starting operation.

Page 11Reference numerals

1 dual-clutch transmission	23 shifting set <u>coupling device</u>	☒
2 drive shaft	24 shifting set <u>coupling device</u>	☒
3 first input shaft	25 shifting set <u>coupling device</u>	☒
4 second input shaft	30 dual-clutch <u>transmission</u>	☒
5 first countershaft	31 shifting set <u>coupling device</u>	☒
6 second countershaft	32 shifting set <u>coupling device</u>	☒
7 idler wheel	33 fixed wheel	☒
8 idler wheel	34 idler wheel	
9 idler wheel	35 idler wheel	
10 reverse gear idler wheel	36 idler wheel	
11 fixed wheel	37 fixed wheel	
12 fixed wheel	38 shifting <u>coupling device</u>	☒
13 fixed wheel	G1 first gear	
14 fixed wheel	G2 second gear	
15 idler wheel	G3 third gear	
16 idler wheel	G4 fourth gear	
17 idler wheel	G5 fifth gear	
18 output gear wheel	G6 sixth gear	
19 output gear wheel	G7 seventh gear	
20 toothing on differential transmission	RG reverse gear	
21 differential transmission	K1 clutch	
22 shifting set <u>coupling device</u>	☒ K2 clutch	

ABSTRACT OF THE DISCLOSURE

A six-gear or seven-gear dual-clutch transmission (1, 30) comprising two clutches (K1, 2) the input sides of which are connected with one drive shaft (2) of a prime mover and the output sides with each one of two input shafts (3, 4) disposed coaxially to each other, two countershafts (5, 6) upon which gear wheels designed as idler wheels are rotatably supported, gear wheels designed upon input shaft (3, 33, 37) and in tooth contact with idler wheels (8, 9, 10, 15, 16, 17, 34, 35, 36), coupling devices (22, 23, 24, 25, 31, 32) non-rotatably and axially movably supported on both countershafts (5, 6), and movable via setting devices and one output gear wheel (18, 19) on a respective countershaft (5, 6) which are in tooth contact with a toothing (20) on one differential transmission (21). To shorten the length and reduce the multiplicity of parts, the six-gear and seven-gear transmission (1, 30) are designed so that upon one input shaft (3) two fixed wheels (13, 14) and upon the other input shaft (4) at least one other fixed wheel (12) are situated for respectively driving two idler wheels (8, 15 and ~~36~~ 35, 36; 9, 16; 10, 17).